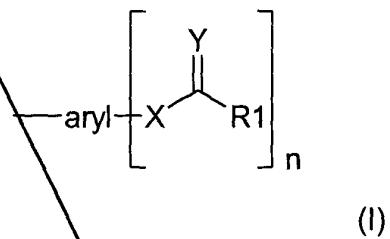


Claims:

1. A conjugate, which comprises a molecule to be transported and at least one aryl radical of the formula I,

5



wherein

aryl is a group which contains at least one ring having an aromatic character;

X is O or N;

Y is O, S or NH-R²;

R¹ is a substituted or unsubstituted C₁-C₂₃ alkyl radical, which may be straight-chain or branched and may contain double and/or triple bonds;

R² is a substituted or unsubstituted C₁-C₁₈ alkyl radical which may be straight-chain or branched and may contain double and/or triple bonds; and

n is an integer greater than or equal to 1,

- 20 wherein the aryl radical is attached to the molecule to be transported either directly via a chemical bond or indirectly via a chemical group, wherein the chemical group is not a CH₂-S group if the attachment is through an internucleotide phosphodiester bond of the molecule to be transported.

- 25 2. The conjugate as claimed in claim 1, wherein the molecule to be transported is a macromolecule having a molecular weight > 500 Dalton.

3. The conjugate as claimed in claim 1, wherein the molecule to be transported is a polynucleotide, a polypeptide, or a polysaccharide.

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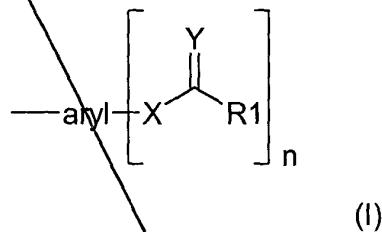
4. The conjugate as claimed in claim 1, wherein the molecule to be transported is an oligonucleotide.

5. The conjugate as claimed in claim 4, wherein the oligonucleotide is modified.

6. The conjugate as claimed in claim 1, wherein the molecule to be transported is a low-molecular-weight compound having a molecular weight < 500 Dalton.

7. The conjugate as claimed in claim 6, wherein the low-molecular-weight compound is a mononucleotide.

8. A conjugate, which comprises a molecule to be transported and at least one aryl radical of the formula I,



wherein

aryl is a group which contains at least one ring having an aromatic character;

X is O or N;

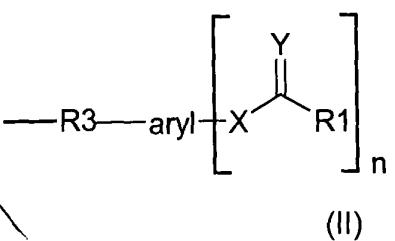
Y is O, S or NH-R²;

R¹ is a substituted or unsubstituted C₁-C₂₃ alkyl radical, which may be straight-chain or branched and may contain double and/or triple bonds;

R² is a substituted or unsubstituted C₁-C₁₈ alkyl radical which may be straight-chain or branched and may contain double and/or triple bonds; and

n is an integer greater than or equal to 1,

wherein the aryl radical is attached to the molecule to be transported via a chemical group, and wherein the chemical group together with the aryl radical has the formula II

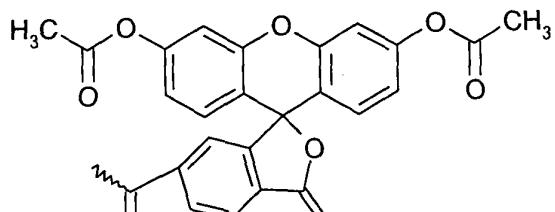


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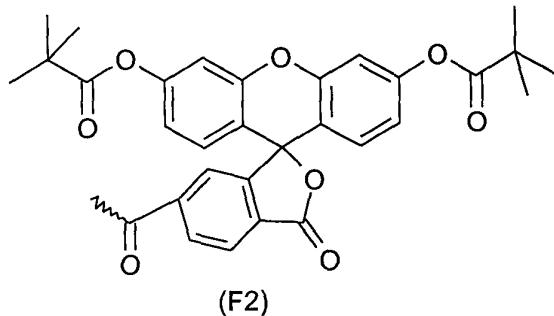
- 5 where aryl, X, Y and R¹ are as defined above and
~~R³~~ is the chemical group, where ~~R³~~ is preferably a -C(=O) group or an -NH -C(=S) group.

9. The conjugate as claimed in claim 1 or claim 8, wherein the chemical group and the aryl radical together have one of the formulae F1 to F11

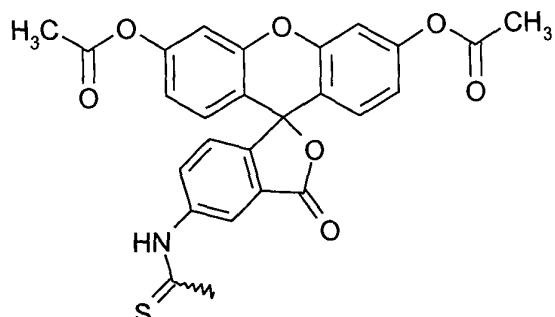
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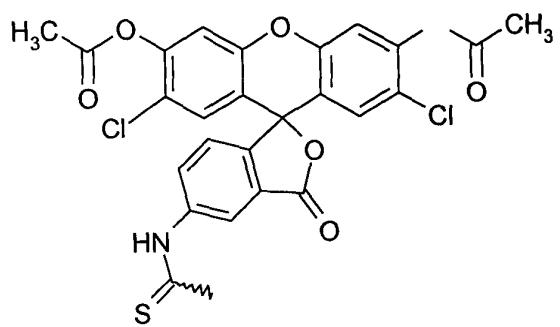
(F1)



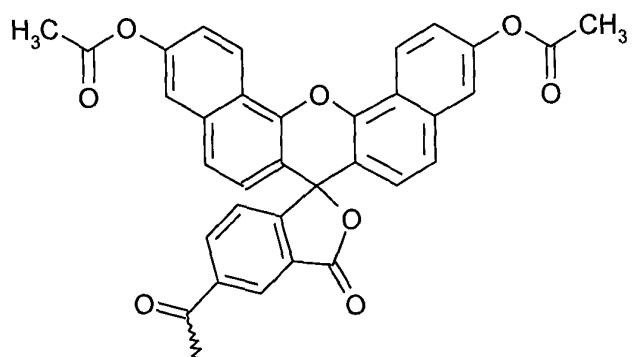
(F2)



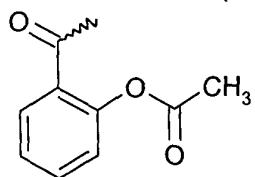
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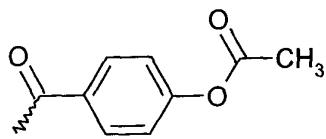
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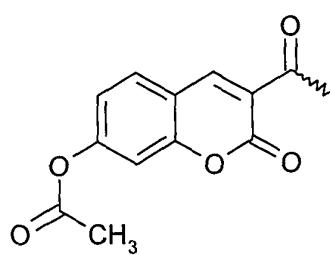
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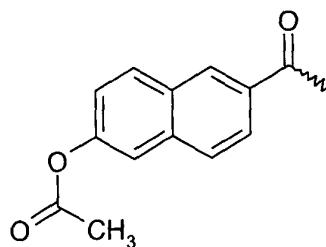
(F6)



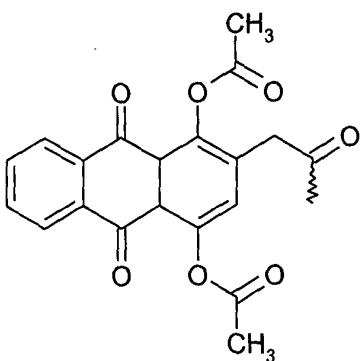
(F7)



(F8)



(F9)



(F11)

10. A conjugate which comprises
- a polynucleotide, oligonucleotide, or mononucleotide, and
- 5 b) one or more aryl radicals of the formula I,
wherein the aryl radical(s) is/are attached either directly via a chemical bond or
indirectly via a chemical group to the
5' end and/or
3' end and/or
- 10 10 one or more nucleobases and/or
one or more sugar radicals and/or
one or more internucleoside bonds,
wherein the chemical group is not a CH₂-S group if the attachment is via an
internucleotide phosphodiester bond.
- 15 15 11. A process for preparing a conjugate comprising a molecule to be transported and
at least one aryl radical, wherein
- the molecule to be transported which has a reactive function at the position to which
the aryl radical is to be attached is prepared; and
- 20 20 b) the aryl radical is prepared, and
c) the molecule to be transported is reacted with the aryl radical to give the conjugate.
12. The process as claimed in claim 11, wherein the reactive function is an amino
group, mercapto group, chloroacetyl group, isocyanate group, isothiocyanate group,
25 carboxylic acid group, N-hydroxysuccinimide group, or a carbonyl chloride group.

Sub B 10
13. The process as claimed in claim 11, wherein the reaction of the molecule to be transported with the aryl radical is carried out at a pH ≤ 7.5.

14. The process as claimed in claim 11, wherein the reaction of the molecule to be transported with the aryl radical is carried out at a pH of 7.0.
5

15. The process as claimed in claim 11, wherein the molecule to be transported is a polynucleotide, oligonucleotide, or mononucleotide.

16. A method for transporting a molecule across a membrane, which comprises
a) preparing a conjugate in which the molecule to be transported is attached to at least one aryl radical of the formula I or II, and
b) incubating the conjugate with the membrane.
10

15 17. A method for transporting a molecule into a cell, which comprises
a) preparing a conjugate in which the molecule to be transported is attached to at least one aryl radical of the formula I or II, and
b) incubating the conjugate with the cell, whereupon
c) the conjugate is transported into the cell without the aryl radical being cleaved off.
20

18. The method as claimed in claim 17, wherein the cell is a eukaryotic or a prokaryotic cell.

25 19. The method as claimed in claim 17, wherein the cell is a bacterial cell, yeast cell, or a mammalian cell.

20. The method as claimed in claim 17, wherein the cell is a human cell.

21. The process as claimed in claim 17, wherein the cell is a tumour cell.
30

22. A process for preparing a pharmaceutical composition, which comprises
a) preparing a pharmaceutically active compound or a derivative thereof, where said pharmaceutical active compound or said derivative contains at least one reactive function at a position to which an aryl radical is to be attached,
35 b) preparing an aryl radical of the formula I or II,

c) reacting the pharmaceutically active compound or its derivative with said aryl radical to give the conjugate and admixing the conjugate.

23. The process of claim 22, further comprising the addition of an additive and or
5 excipient.

24. A pharmaceutical composition, comprising the conjugate as claimed in claim 1 or claim 8.

10 25. A diagnostic aid, comprising the conjugate as claimed in claim 1 or claim 8.

26. A test kit, comprising the conjugate as claimed in claim 1 or claim 8.